

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Group Art Unit : 2131
Examiner : Christian A. LaForgia

**APPEAL BRIEF
On Appeal from Group Art Unit 2131**

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I. REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., the assignee of record.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

- a) Claims 1-12 and 14 are pending. Claims 1, 11 and 14 are independent.
- b) Claims 1-12 and 14 stand rejected and are the subject of this appeal.
- c) Claim 13 is cancelled.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as amended and submitted in Appellant's response of April 6, 2007. These amendments were entered by the Examiner. No claim amendments have been submitted following the response of April 6, 2007. Nor are any claim amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention, as recited in claim 1, is directed to a method of processing an information signal (page 14, lines 22-31). The method comprising: applying a signal modification process to an information signal resulting in a processed signal (page 9, lines 5-18;

page 10, line 28 to page 11, line 14), said signal modification process being controlled by at least one control parameter (page 9, lines 9-10; page 11, lines 9-14); comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal (page 9, lines 5-18; page 11, lines 15-26); adjusting said at least one control parameter in response to the determined measure of perceptual quality (page 9, lines 19-21; page 11, line 27 to page 12, line 14).

The claimed invention, as recited in claim 11, is directed to an arrangement for processing an information signal. The arrangement comprising: signal processing means (Fig. 1, 101; Fig. 2a, 201, 203; Fig. 2b, 201, 207; page 7, line 33 to page 8, line 5; page 14, lines 11-15) for applying a signal modification process to an information signal resulting in a processed signal (page 9, lines 5-18; page 10, line 28 to page 11, line 14), said signal modification process being controlled by at least one control parameter (page 9, lines 9-10; page 11, lines 9-14); means for comparing (Fig. 1, 102; Fig. 2a, 202; Fig. 2b, 202; page 7, line 33 to page 8, line 5; page 14, lines 11-15) the processed signal with the information signal to determine a measure of perceptual quality of the processed signal (page 9, lines 5-18; page 11, lines 15-26); and means for adjusting (Fig. 1, 103; Fig. 2a, 201, 203; Fig. 2b, 201, 207; page 7, line 33 to page 8, line 5; page 14, lines 11-15) said at least one control parameter in response to the determined measure of perceptual quality (page 9, lines 19-21; page 11, line 27 to page 12, line 14).

The claimed invention, as recited in claim 14, is directed to a computer program product for processing an information signal, the computer program product embodied on a computer-readable medium (page 7, lines 11-17; page 14, lines 22-31; page 15, lines 3-8). The computer program product comprising: computer program instructions for applying a signal modification process to an information signal resulting in a processed signal (page 9, lines 5-18; page 10, line

28 to page 11, line 14), said signal modification process being controlled by at least one control parameter (page 9, lines 5-18; page 11, lines 15-26); computer program instructions for comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal (page 9, lines 5-18; page 11, lines 15-26); computer program instructions for adjusting said at least one control parameter in response to the determined measure of perceptual quality (page 9, lines 19-21; page 11, line 27 to page 12, line 14).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claim 14 is properly rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter.

Whether claims 1-12, and 14 are properly rejected under 35 USC 102(e) as being anticipated by Watson et al. (US Pat Pub No 2004/0024588)(hereinafter Watson).

VII. ARGUMENT

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

A. Claim 14 is not properly rejected under 35 U.S.C. 101, as being directed to non-statutory subject matter.

The Examiner points to paragraph 0062 of appellant's publication of the instant application (U.S. patent publication 2006/0140406) as disclosing a computer-readable medium as being a transmission medium or carrier wave. It is respectfully submitted that the Examiner has not correctly analyzed the claim and has not established a *prima facie* case setting forth on the record why the invention is not eligible subject matter, as is required by MPEP 2106 IV.

Furthermore, functional descriptive material claimed in combination with an appropriate computer readable medium to enable the functionality to be realized is patent eligible subject matter if it is capable of producing a useful, concrete and tangible result when used in the computer system.

Claim 14 is directed to a computer program product for processing an information signal, the computer program product is embodied on a computer-readable medium.

As disclosed in paragraphs 0062 and 0108 of appellant's publication, the invention may be implemented in computer instructions and carried out by a processing means by the execution of the computer instructions. Paragraphs 0068 and 103 provide examples of processing devices. The result of the execution of the program instructions is a useful, concrete and tangible result.

In the final Office Action (pages 4 and 5), the Examiner has simply presented a conclusory statement that the claimed invention involves signals encoded with functional descriptive material and does not fall within any of the categories of patentable subject matter.

There is no analysis setting forth any reasoning as required by the Interim Guidelines or MPEP to determine patent eligibility. The Examiner simply provides the conclusory statement and does not consider the claim as a whole.

The analysis for determining patent eligible subject matter under §101 is described in the USPTO Interim Guidelines for Subject Matter Eligibility (Guidelines) as a 4 step process:

1. Does the claimed invention fall within one of the four **statutory categories**?
2. Does the claimed invention fall within a **judicial exception**?
3. Does the claimed invention provide a **practical application**?
4. Does the claimed invention **wholly preempt** all substantial applications of a judicial exception?

All four steps must be applied to each and every claim to form a complete analysis. In the final Office Action, paragraph 16, the Examiner simply states that the claims are not one of the four types of statutory subject matter without applying the 4 step process.

Step 3 of the analysis requires that even if the claim does not appear to fall within a statutory category of invention, the analysis under §101 must continue to determine if the claim recites a practical application. Likewise, even if a claim recites a judicial exception, the analysis must continue. A claim is directed to a practical application when there is either a physical transformation or when a useful, concrete and tangible result is produced. The Examiner has not provided any analysis as required by the MPEP.

While the guidelines state that signals, *per se* are not included in one of the statutory categories of invention, Appellant claims a computer program product, embodied in a computer readable medium. Examples of a computer readable medium are described in the specification, for example paragraphs 0062 and 0072 of appellant's publication. The computer readable medium is a physical structure which provides the functional descriptive material in usable form to permit the functionality to be realized with a computer, for example a processor, computer, or processing system.

The Interim Guidelines provide that:

Functional descriptive material claimed in combination with an appropriate computer readable medium to enable the functionality to be realized is patent eligible subject matter if it is capable of producing a useful, concrete and tangible result when used in the computer system. Compare *Warmerdam* to *In re Lowry* 32 USPQ2d 1031 where a memory with a data structure that increased computing efficiency was patentable.

The computer readable medium must be physical structure which provides the functional descriptive material in usable form to permit the functionality to be realized with the computer. A program product which does not explicitly include such a medium, a program *per se*, a signal or other type of transmission media that fails to include the hardware necessary to realize the functionality (e.g., a transmitter or a receiver), and a piece of paper with the functional descriptive

material written on it are all examples of media which are not believed to enable the functionality to be realized with the computer.

Appellant submits the claimed invention is statutory and recites a practical application and produces a useful, concrete and tangible result when used in a computer system or processor by adjusting at least one control parameter in response to the determined measure of perceptual quality.

For at least the foregoing reasons, the Examiner has not met the burden of establishing a *prima facie* case setting forth on the record why the invention is not eligible subject matter under 35 U.S.C. §101. Nor is the rejection supported by the MPEP or case law. Thus the rejection of claim 14 should be reversed.

B. Claims 1-12, and 14 are not properly rejected under 35 USC 102(e) as being anticipated by Watson.

To anticipate the claimed invention the cited reference must teach each and every claimed feature.

1. Claim 1

Appellant's independent claim 1 includes features not found or even suggested in the cited reference Watson. For example, claim 1 recites: "comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal; adjusting said at least one control parameter in response to the determined measure of perceptual quality" (emphasis added).

The Office Action points to Watson, paragraphs [0212]-[0213] and [0235]-[0244] to show the claimed features (see pages 5 and 6 of the final Office Action).

However, Watson [0212]-[0213] describes finding a distortion measurement which compares the original input signal with the encoded signal (output of the rate control). The

distortion measurement is different from appellant's claimed perceptual quality. Distortion is defined in the last sentence of [0215] in Watson as only the difference between the original and coded signals. The difference is what is termed distortion.

In contrast, appellant's claimed invention describes a measure of perceptual quality of the processed signal. This is not just the difference between the original and coded signals, but a measure of perceptual quality of the processed signal.

For example, appellant's specification describes the measure of perceptual quality is indicative of a perceivable change in the information content of the information signal caused by the signal modification process. Thus, appellant's claimed invention advantageously provides an automatic control based on a perceptual measure, thereby taking into account the artifacts of the signal processing that influence the perceptual quality. Furthermore, artifacts may be considered other than those considered by the actual signal processing (see paragraphs [0018]-[0020] of the present application in U.S. patent publication 2006/0140406).

The Examiner also points to Watson, paragraphs [0235]-[0244] as describing the claimed features. However, these paragraphs only describe the analysis of characteristics of the source signal and then adaptively controlling the rate of parameter modulation and transitions based on the characteristics of the source signal. Analyzing the source signal is different from appellant's claimed feature of comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal.

In the "Response to Arguments" section of the final Office Action, paragraph 7, the Examiner points to Figure 29, and paragraphs [225]-[227] of Watson to allegedly show appellant's feature of comparing of the processed signal with the information signal to determine a measure of perceptual quality.

However, a review of these paragraphs in Watson shows that a comparison is made of a threshold and an inverse quantized signal. There is no description in Watson of comparing as claimed by appellant, nor is there a description that the threshold is calculated by comparing as claimed by appellant. Watson only states that the threshold is calculated based on the signal from the coded bitstream [0225 of Watson]. There is no description in Watson of comparing the original signal with the information signal to determine a measure of perceptual quality of the processed signal as claimed by appellant.

Fig. 29 of Watson likewise fails to show or suggest comparing the original signal with the information signal as claimed by appellant. Watson only shows comparing the inverse quantized signal to a threshold. There is no further information with regard to calculating the threshold other than the specification stating it is calculated from the coded bitstream. This description in Watson is different from appellant's claimed invention which is comparing the original signal with the information signal to determine a measure of perceptual quality of the processed signal.

For at least the foregoing reasons, Watson fails to teach or suggest the features recited in appellant's claim 1; thus, the claim cannot be anticipated and the rejection should be reversed.

2. Claim 11

Appellant's independent claim 11 includes features not found or even suggested in the cited reference Watson. For example, claim 11 recites: "means for comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal; and means for adjusting said at least one control parameter in response to the determined measure of perceptual quality" (emphasis added).

The Examiner rejects claim 11 using identical arguments as used to reject claim 1 (see final Office Action, paragraph 19). As pointed out above, with regard to claim 1, Watson fails to

teach at least the features of claim 1 including comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal. Claim 11 includes a similar feature.

Appellant essentially repeats the above arguments from claim 1 pointing out why claim 11 includes features not found or suggested in Watson and, therefore, cannot be anticipated by Watson.

Thus, for at least the foregoing reasons, appellant respectfully submits that independent claim 11 is not anticipated by Watson and the rejection should be reversed.

3. Claim 14

Appellant's independent claim 14 includes features not found or even suggested in the cited reference Watson. For example, claim 14 recites: "computer program instructions for comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal; computer program instructions for adjusting said at least one control parameter in response to the determined measure of perceptual quality."

The Examiner rejects claim 14 using identical arguments as used to reject claim 1 (see final Office Action, paragraph 19). As pointed out above, with regard to claim 1, Watson fails to teach at least the features of claim 1 including comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal.

Appellant essentially repeats the above arguments from claim 1 pointing out why claim 14 includes features not found or suggested in Watson and, therefore, cannot be anticipated by Watson.

Thus, for at least the foregoing reasons, appellant respectfully submits that independent claim 14 is not anticipated by Watson and the rejection should be reversed.

4. Dependent Claims 2-10 and 12

Claims 2-10 depend from independent claim 1 and include at least the distinguishing features found in claim 1 as pointed out above. Claim 12 depends from independent claim 11 and includes at least the distinguishing features found in claim 11.

Each of the dependent claims includes further distinguishing features not found in Watson. For example, claim 2 recites “comparing the processed signal with the information signal comprises comparing said first segment of the processed signal with said first segment of the information signal.” The Examiner simply points to Watson paragraph 146, however, there is nothing in this paragraph, nor Figures 4 and 5, which teaches the claimed feature. Watson simply describes comparing the difference between the source and the watermarked data. Watson fails to describe comparing a first segment of the processed signal with a first segment of the information signal.

With regard to claim 3, the Examiner, in the “Response to Arguments” section, states that subsequent is defined as occurring later or after. Appellant agrees, therefore, Watson’s overlapping window is not occurring subsequent to one another because they are overlapping. One window that overlaps another window does not occur subsequent, it is occurring at least partially during the same time and not later or after the first window. Appellant claims a second segment of a signal subsequent to a first segment. As stated by the Examiner subsequent is defined as occurring later or after. This is different from overlapping windows of Watson.

Claim 4 recites the second segment of the information signal is a delayed first segment of the information signal, the first segment of the information signal being delayed to compensate for a duration of the steps of comparing the processed signal with the information signal and of adjusting the at least one control parameter.

The Examiner simply states Watson shows the delayed signal and points to Figure 3a, paragraph 108 of Watson. However, the Examiner fails to consider claim 2, from which claim 4 depends. Claim 2 adds applying at least a part of the signal modification process to a second one of said segments of the information signal resulting in a second segment of the processed signal, the at least part of the signal modification process being controlled by said adjusted at least one control parameter.

Thus, appellant's claimed invention is applying at least a part of the signal modification process to a delayed first segment of the information signal resulting in a second segment of the processed signal, the at least part of the signal modification process being controlled by said adjusted at least one control parameter. This feature is not found or suggested in Watson.

The remaining dependent claims likewise recite features not found or suggested in Watson. Accordingly, dependent claims 2-10 and 12 are also allowable by virtue of their dependency, as well as the additional subject matter recited therein and the rejections should be reversed.

CONCLUSION

In light of the above, Appellant respectfully submits that the rejections of claims 1-12 and 14 are in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

- 1.(original): A method of processing an information signal, the method comprising:
 - applying a signal modification process to an information signal resulting in a processed signal, said signal modification process being controlled by at least one control parameter;
 - comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal;
 - adjusting said at least one control parameter in response to the determined measure of perceptual quality.
- 2.(original): A method according to claim 1, further comprising
 - dividing the information signal into a sequence of segments of the information signal;
 - wherein the step of applying the signal modification process comprises applying the signal modification process to a first one of said segments of the information signal resulting in a first segment of the processed signal;
 - wherein the step of comparing the processed signal with the information signal comprises comparing said first segment of the processed signal with said first segment of the information signal; and
 - wherein the method further comprises applying at least a part of the signal modification process to a second one of said segments of the information signal resulting in a second segment of the processed signal, the at least part of the signal modification process being controlled by said adjusted at least one control parameter.
- 3.(original): A method according to claim 2, wherein the second segment of the information signal is a segment subsequent to the first segment of the information signal in the sequence of segments of the information signal.
- 4.(previously presented): A method according to claim 2, wherein the second segment of the information signal is a delayed first segment of the information signal, the first segment of the information signal being delayed to compensate for a duration of the steps of comparing the processed signal with the information signal and of adjusting the at least one control parameter.

- 5.(original): A method according to claim 1, further comprising
delaying the information signal to compensate for a duration of the steps of
comparing the processed signal with the information signal and of adjusting the at least one
control parameter; and
applying at least a part of the signal modification process to the delayed information
signal resulting in a modified processed signal, the at least part of the signal modification process
being controlled by the adjusted at least one control parameter.
- 6.(previously presented): A method according to claim 1, wherein the signal modification
process comprises
determining a watermark signal according to a watermark embedding model;
embedding the determined watermark signal in the information signal.
- 7.(previously presented): A method according to claim 4, wherein the signal modification
process comprises
determining a watermark signal according to a watermark embedding model;
embedding the determined watermark signal in the information signal;
wherein the step of embedding the determined watermark signal is controlled by the
at least one control parameter; and wherein the step of applying at least a part of the signal
modification process to the information signal comprises
delaying the information signal resulting in a delayed signal; and
embedding the determined watermark signal in the delayed signal, the embedding
being controlled by the adjusted at least one control parameter.
- 8.(previously presented): A method according to claim 6, wherein the information signal is an
audio signal and the watermark embedding model comprises a psycho-acoustic model of the
human auditory system.
- 9.(previously presented): A method according to claim 1, wherein the information signal is an
audio signal and the signal modification process comprises an audio coding process.

10.(previously presented): A method according to claim 4, wherein the information signal is an audio signal and the signal modification process comprises an audio coding process comprising

- determining a bit-allocation pattern for coding audio signal; and
- performing a quantization of the audio signal according to the determined bit-allocation resulting in a quantized signal;

wherein the step of comparing the processed signal with the information signal comprises

- reconstructing the audio signal from the quantized signal; and
- comparing the reconstructed signal with the audio signal;

wherein the step of adjusting said at least one control parameter comprises adjusting the bit-allocation;

and wherein the step of applying at least a part of the signal modification process to the information signal comprises

- delaying the audio signal resulting in a delayed signal; and
- performing a quantization of the delayed signal according to the adjusted bit-allocation resulting in a processed quantized signal.

11.(original): An arrangement for processing an information signal, the arrangement comprising:

- signal processing means for applying a signal modification process to an information signal resulting in a processed signal, said signal modification process being controlled by at least one control parameter;

- means for comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal; and

- means for adjusting said at least one control parameter in response to the determined measure of perceptual quality.

12.(original): A device comprising an arrangement according to claim 11.

13.(cancelled)

14.(previously presented): A computer program product for processing an information signal, the computer program product embodied on a computer-readable medium, the computer program product comprising:

computer program instructions for applying a signal modification process to an information signal resulting in a processed signal, said signal modification process being controlled by at least one control parameter;

computer program instructions for comparing the processed signal with the information signal to determine a measure of perceptual quality of the processed signal;

computer program instructions for adjusting said at least one control parameter in response to the determined measure of perceptual quality.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by appellant in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any appeals or interferences related to the present application.